December 27, 1982 CD-82-11

Dear Manufacturer:

As a result of recent audits on driving procedures of test vehicles, two issues of concern to EPA have developed. The first issue involves the use of "maximum available power" as provided for in 40 CFR 86.128-79(e). Specifically, if vehicles equipped with manual transmissions cannot accelerate at the specified rate of the Urban Dynamometer Driving Schedule (UDDS) or Highway Fuel Economy Driving Schedule (HFEDS) the vehicle shall be operated at maximum available power until the vehicle speed reaches the value prescribed for that time in the schedule. It is EPA's policy that "maximum available power" includes downshifting or delays of upshifting if necessary. Our present concern is that this requirement may have been misinterpreted by manufacturers to be limited to use of wide-open-throttle in the prescribed transmission gear determined by the applicable shift schedule. This confusion may have been contributed to by our failure to invalidate some tests at our own facility. These failures do not reflect a relaxation of our policy. Rather, they were errors on our part and we are moving to prevent further errors of this type.

Consistent with the above stated policy, we do not consider it sufficient to begin accelerations prior to the time marked by the prescribed driver's trace ("running start") in order to avoid downshifts or delays of upshifts and thus maintain vehicle speed within the tolerances of allowable speed variation. While this technique may result in the vehicle staying within the tolerances, it does not make the vehicle comply with the requirement to either maintain the specified rate of acceleration or use maximum available power. The provisions of 40 CFR 86.115-78, in fact, allow speeds lower than the tolerance in cases where the vehicle is operated at maximum available power, therefore, it is not necessary to anticipate accelerations. In addition, we do not consider such driving techniques good engineering practice, as discussed below. If your company does not downshift or delay upshifting as necessary to make use of available power to maintain indicated acceleration

rates, you should do so. The proper use of downshifting or delays to upshifting may be accomplished by reviewing a vehicle's acceleration characteristics during preconditioning. Special care should be taken in determining the cold engine acceleration characteristics on the early accelerations in the UDDS. Vehicles delivered to EPA for testing should also have appropriate downshifts or delays of upshifts marked on the

driver's trace to avoid delays in testing and voided tests at our laboratory. Tests may be delayed or invalidated at EPA if the shift traces are not appropriately marked so that the specified acceleration rate can be maintained.

The second issue involves inappropriate use of tolerances of speed variations from the prescribed UDDS and HFEDS. 40 CFR 86.115-78(b) provides for an allowable tolerance of speed variation from the specified dynamometer driving schedules to be applied to official emission and fuel economy tests. This tolerance is intended to permit reasonable speed variations encountered when attempting to follow the specified driving schedule. The tolerance is not intended to be used to intentionally "smooth" out the driver's trace for optimum results. Clearly it is the intent of the regulations to have the driver attempt to follow the prescribed driving schedule, not to intentionally create another schedule within the band limits. We believe that all drivers of official tests should be instructed to follow the specified dynamometer driving schedule as closely as possible. Any other driving technique is not considered good engineering practice. One way to help assure good engineering practice is to provide drivers with traces (CRT or hard copy) that do not include tolerances; however, this does not guarantee acceptable results. Driver re-education may be required.

In accordance with the provisions of 40 CFR 600.008-77(g), we may reject all fuel economy data submitted by a manufacturer if there appears to be an unacceptable level of laboratory correlation. We believe that the misuse of driving techniques as described in this letter could contribute to a general data offset which might make it necessary for EPA to reject all of a manufacturer's data or to institute a 100 percent confirmatory testing rate. It is our goal to reduce confirmatory testing costs for both EPA and manufacturers, but your cooperation is required to assure that good engineering practice is used in all testing situations.

Sincerely yours,

Robert E. Maxwell, Director
Certifi cation Division
Office of Mobile Sources